

## **APPENDIX B**

***Wintering Raptors of the Cagney Ranch and Surrounding  
Ramona Grasslands (2003-2006) (Wildlife Research  
Institute 2007)***

# **Wintering Raptors of the Cagney Ranch and Surrounding Ramona Grasslands (2003-2006)**

*For*

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**January 2007**

## **EXECUTIVE SUMMARY**

The Wildlife Research Institute (WRI) provides a detailed study of the Wintering Raptors of the Ramona Grassland with an emphasis on the Cagney Ranch. This approximately 5,000-acre grassland is what remains of over 15,000 acres of grassland, which existed in the Santa Maria Valley until the 1970's. Historical records of the area and its use are presented in the Introduction section and as known by the authors at the time of this writing. This study is intended to present a baseline for subsequent monitoring of raptors. Since wintering raptors move continuously and quickly throughout the grassland it is not practical to count only those on the Cagney Ranch. Therefore, wintering raptors were counted wherever they occurred in the grassland that was available to the WRI researchers.

WRI conducts a free public educational program called "Hawk Watch" each winter from 9-20 times and some of the data in this report is derived from those weekly observation periods. Observations not recorded as part of this study or Hawk Watch are also presented in the results section of this report. Recommendations and suggestions for future management practices are included in the Recommendations section and form the potential basis for managing the entire Ramona Grasslands.

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# **INTRODUCTION**

## **Project Location**

The proposed project will take place within a core preserve area known as the Ramona Grasslands Preserve (RGP). RGP is located in the vicinity of the Santa Maria Creek and the Ramona Airport in the western portion of the community of Ramona, San Diego County, California (Figure 1). The preserve area includes properties currently owned by The Nature Conservancy, including the former Cagney Ranch, the Hardy property, Oak Country Estates, and Eagle Ranch. Adjacent landowners, including Wildlife Research Institute (WRI), selected Voorhes Lane properties, Cumming Ranch, the County's Ramona Airport open space, Hobbs, Martz, and the Ramona Water District were given the opportunity to take part in this project. Only properties with landowner consent were included in project activities.

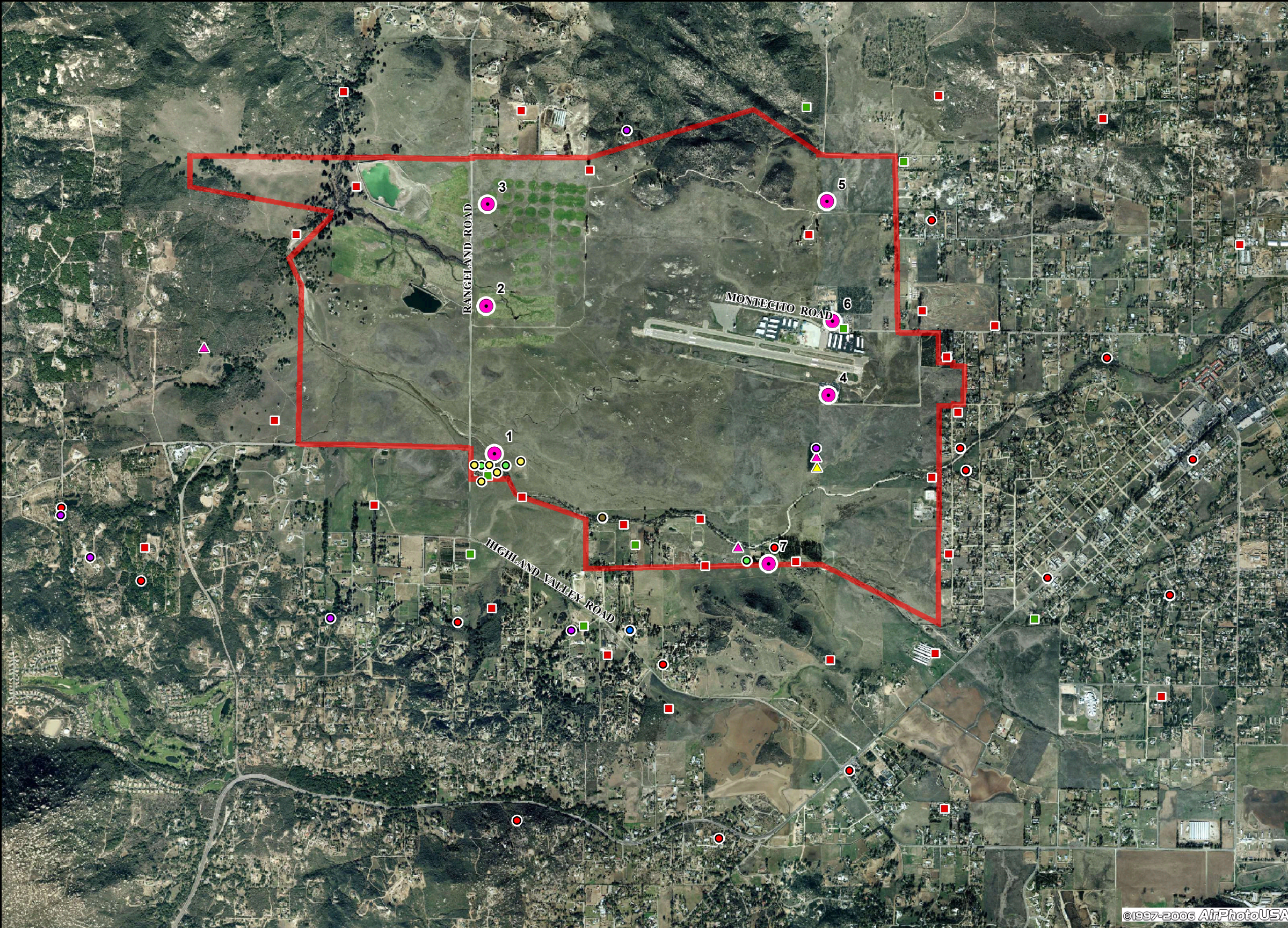
Most of the properties have been used as livestock pasturage, but were formerly part of a large expanse of native grassland. These locations have been identified by the proposed North County Multiple Species Conservation Program (MSCP) Subarea Plan as areas of very high quality habitat and, as such, have been included in the planned preserve area.

## **History of the Ramona Grasslands**

The Ramona Grasslands have been grazed since at least the 1850s by white settlers. Prior to that, Mexican Rancheros allowed cattle and horses to roam freely throughout the area. Sometimes the density of cattle and horses exceeded the carrying capacity, and during drought years, great numbers of animals, especially horses, were slaughtered to assure that some, especially cattle, would survive the droughts. During the 1860s, one such drought occurred and as a result of the animal losses many of the Mexican Rancho owners sold out to white settlers and land speculators. Pamo Valley, Ballena Valley, Warner Ranch and Santa Ysabel Valley were also known to be grasslands at the time of white settlers arriving in San Diego County. Historical records indicate that Pronghorn populations existed in these grasslands; therefore, the grasslands had to have existed as somewhat similar habitat for long periods prior to recorded times.

Native Americans used fire to maintain the grasslands. Whether intentional or accidental, the result was the same with grasslands being maintained. Prior to white settlement, the Spanish (Mexican) settlement in San Diego sent soldiers out to stop Indian uprisings in Ramona and in particular Pamo Valley. Indian settlements existed in and around the





## Legend

 Proposition 13 Project Area

## Nesting Locations

-  American Kestrel
-  Barn Owl
-  Burrowing Owl
-  Cooper's Hawk
-  Great Horned Owl
-  Red-shouldered Hawk
-  Red-tailed Hawk
-  Stick Nest
-  Turkey Vulture
-  White-tailed Kite
-  Winter Monitoring Locations



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Figure 1 - Winter Monitoring Locations, and Identified Raptor Nest Locations



Ramona Grasslands. Published books on the history of the area recorded that Mr. Etcheverry, an early rancher, grazed 15,000 sheep in the 1850's throughout the Ramona Grasslands and hired local Indians, living in the oaks at the edges of the Grasslands, to tend to the sheep.

Golden Eagles, primarily a grassland species, have declined in San Diego County from a recorded 104 pairs in the late 1800's to approximately 46 breeding pair in 2006 (WRI 2005; D. Bittner, pers. comm.). This is a loss of 56% of the Golden Eagle population. This extirpation is primarily due to lost habitat, including grasslands or combinations of grassland and other open plant communities. Fire was a primary contributor to maintaining these plant communities. In the 1970's, agriculture went from grazing to citrus and avocado groves in the western sections of the county. Ranches became housing and industrial developments, which were easily built in the flat and treeless grasslands; and it followed that soon grasslands became a rare ecosystem of specific plants and animals.

### **Project Description**

The County of San Diego Department of Parks and Recreation, with assistance from The Nature Conservancy (TNC), Wildlife Research Institute (WRI), and Conservation Biology Institute (CBI), was awarded a Proposition 13 Grant by the California Water Resources Control Board for the Santa Maria Creek Protection and Restoration Project (see also Appendix A). The purpose of the grant is to protect and restore Santa Maria Creek and its adjacent watershed areas within the Ramona Grasslands Preserve, the project area (hereinafter referred to as "Ramona Grasslands"), to improve water quality and habitat conditions in the creek corridor. Santa Maria Creek has been subjected to unmanaged cattle grazing, which has resulted in elevated suspended sediment concentrations, bacteria, and nutrients in the stream. In addition, increasing urbanization in the town of Ramona, upstream of the project area, has contributed urban, non-point source runoff to the stream. Land uses upstream of the Ramona Grasslands are largely rural residential, but development densities are projected to increase in the future according to General Plan 2020 of the County of San Diego. The Santa Maria Creek Protection and Restoration Project will prevent residential development in the Ramona Grasslands, thus eliminating a future source of urban runoff to Santa Maria Creek and downstream receiving waters. The project will also manage cattle grazing by limiting access of livestock to the creek corridor with fencing, thus eliminating a source of agricultural pollutants and allowing stabilization of the channel and restoration of riparian and wetland vegetation to enhance riverine functions in the creek system.



A second component of the project consists of collecting baseline biological data, which will facilitate preserve management decision-making and track responses to management actions to refine recommended monitoring protocols. Baseline data will enable preserve managers to:

- Measure the success of the non-native plant species removal and restoration program.
- Measure changes in the physical condition and hydrology of the creek, ephemeral aquatic habitats (vernal pools, vernal swale, and alkali playas), and their watersheds.
- Track changes in the current distribution and abundance of management target species.
- Understand the distribution of non-native animal species.
- Provide a benchmark to which all subsequent monitoring data can be compared, realizing that the “typical” and historical conditions of the Grasslands are unknown.

The target species selected for the baseline surveys are the arroyo toad (*Bufo californicus*), riparian bird species, raptors, and Stephens’ kangaroo rat (*Dipodomys stephensi*). In addition, vernal pools were surveyed for fairy shrimp, amphibians, and plant species. Grassland floral surveys and vegetation transects across Santa Maria Creek were also performed. The following sections describe the methods and results of the baseline raptor surveys that were conducted by biologists of the Wildlife Research Institute (WRI) as part of their annual Hawk Watch Program during the winters of 2003 through 2006, and the results of nesting surveys conducted by WRI in the spring and summer of 2005 and 2006, on behalf of TAIC. The significance of these results and recommendations for future monitoring will be discussed as well.

## **METHODS**

### **Historical Data**

Raptor observational data have been compiled from WRI's winter Hawk Watch (held January through February) from 2003, 2004, 2005, and 2006. These observations focus primarily on the grasslands around WRI and along Rangeland Road, just north of WRI, with supplemental observations north of Voorhes Lane and surrounding the airport.

For the years of 2003, 2004, and 2005 only sites 1-3 (at WRI and two sites along Rangeland Road, north of WRI) were utilized for collecting data (Figure 1). All three years contain some weeks in which two days of observation data were collected. Few documented observations were made at sites 4-7 during these years. For 2003 only, observations started in December and covered the time frame between December 28, 2002 and February 2, 2003. Although observations were made for ten weeks in 2005, written documentation for that year is limited. Often apparently individual birds could be identified over time (i.e., within or between years). WRI observers recognize and identify some of the individual ferruginous hawks that winter in the Grasslands. Some have unique colors and behavior; others arrive early, while others are observed on the exact same poles, rocks, or other structures for every observation.

### **Current Data Collected (Year 2006)**

Data collection specific to the Santa Maria Creek Restoration project was completed during the winter months of January and February 2006, when migrating raptors are most likely to be in the area and all raptors are more visible due to decreased foliage.

For observations that could be compared over time (i.e., for monitoring purposes), WRI established the below-described "viewshed" sites and conducted specific surveys to create a complete grassland survey. For 2006, data were collected from 3 predetermined sites (sites 1-3) in the Ramona Grasslands. Surveys were performed on one day per week from January 1 through February 28, 2006. Sites 1-3 are the same sites used for WRI's Hawk Watch and, therefore, the 2006 dataset is comparable to the dataset collected during historic surveys. Between January 14 and January 28, 2006, data were collected on three days at sites 1-3 and at sites 4-7 in the Ramona Grasslands. Figure 1 illustrates the locations of all seven observation sites in the Ramona Grasslands.

For sites 1-3, observations were made from 0900 to 1200 hours, with approximately one hour spent observing at each site. Multiple observers performed the initial spotting of raptors and one experienced raptor biologist identified and recorded observations. Observations were recorded on a standard observation form. Both Kowa 10 x 42 binoculars and 10 x 20-60 zoom scopes were used in raptor identification.

The data from sites 4-7 (Figure 1) were collected on three separate surveys conducted between January 14 and January 28, 2006. The surveys were conducted for two hours between 1200 and 1400. A total of fifteen minutes of observations were collected at each of the three sites. Observations were made by one raptor biologist utilizing the above ocular equipment.

### **Survey Constraints**

Multiple counting is always a concern when dealing with a species that is highly mobile. For this study, we used several methods to avoid multiple counting of the same individuals during an observation period.

1. Multiple observers were used to track the movements of birds that had been previously recorded.
2. Two-way radios and cellular phones were used if monitoring was being conducted simultaneously at multiple sites.
3. If observations were conducted simultaneously, biologists compared records. Field data forms were used to record useful information. In situations, where a bird could have been double-counted, the entry was removed. at a debriefing session immediately after the observations and noted and corrected any obvious duplication.

The historic data for 2005 do not reflect the true raptor population of the Grasslands for that year. Because some data were compromised, only the information resulting from January is presented.

## **RESULTS**

Tables 1-4 present data for years 2003-2006, respectively. The year 2003 was the worst year of a several year drought, but in the winter of 2005 the Santa Maria Creek flooded over of its banks. During the 2006 research season, the Grasslands were dry and the winter rains didn't arrive until late in the winter. The migrant hawks were low in number and those that arrived early moved on

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when prey became hard to find. Tables 1-4 and Figure 2 reflect these variables and provide some insight to normal variation. The ability to recognize some individual birds allowed the observation that a number of ferruginous hawks arrived in Ramona's Grasslands early, and then moved on potentially due to a low prey base.

### **Historic Data**

For 2003, each week is represented by two days of data collection. Table 1 displays observations made from January through February 2003, by date, with a total count for each date. This table displays the total of each week's observations combined as well as the average for each species for each week.

**Table 1. Total number of birds of prey observed wintering in Ramona Grasslands (Site 1-3) through 2003.**

<b>Species*</b>	<b>4-Jan</b>	<b>5-Jan</b>	<b>11-Jan</b>	<b>12-Jan</b>	<b>18-Jan</b>	<b>19-Jan</b>	<b>25-Jan</b>	<b>26-Jan</b>	<b>1-Feb</b>	<b>2-Feb</b>
AK	6	7	5	3	4	5	3	4	4	5
BE	0	0	0	0	0	0	0	0	0	0
BO	1	2	2	2	1	2	2	1	1	0
BR	0	0	0	0	0	0	0	0	0	0
CH	0	0	0	0	0	0	0	0	1	1
FH	3	8	5	5	5	6	3	3	3	6
GE	0	0	2	1	1	1	3	2	2	2
GO	0	0	0	0	0	0	0	0	0	0
MR	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	0	0
OS	0	0	0	0	0	0	0	0	0	0
PF	0	0	0	0	0	0	0	0	0	0
PR	0	1	0	1	1	0	1	1	1	0
RS	0	0	1	0	0	0	1	0	0	0
RT	5	4	8	5	6	6	4	5	8	11
SH	0	0	0	0	0	0	0	0	0	0
SS	0	0	0	0	0	0	0	0	0	0
TV	8	15	2	17	7	12	16	12	12	12
WK	0	0	0	0	0	0	0	0	0	0
ZT	0	0	0	0	0	0	0	0	0	0
<b>Total by Date</b>	<b>23</b>	<b>37</b>	<b>25</b>	<b>34</b>	<b>25</b>	<b>32</b>	<b>33</b>	<b>28</b>	<b>32</b>	<b>37</b>

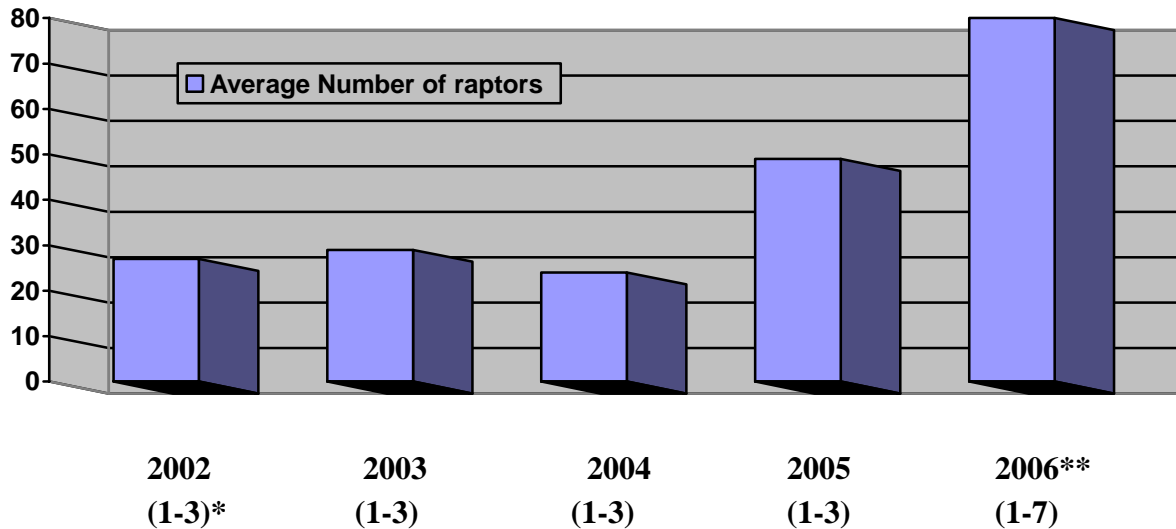
\* Abbreviations and terms are contained in Appendix B

In 2003, all of San Diego County experienced a severe drought (by some believed to have been the worst drought in 164 years (pers. comm., T. Oberbauer)). Golden Eagles in Southern Wildlife Research Institute, Inc.

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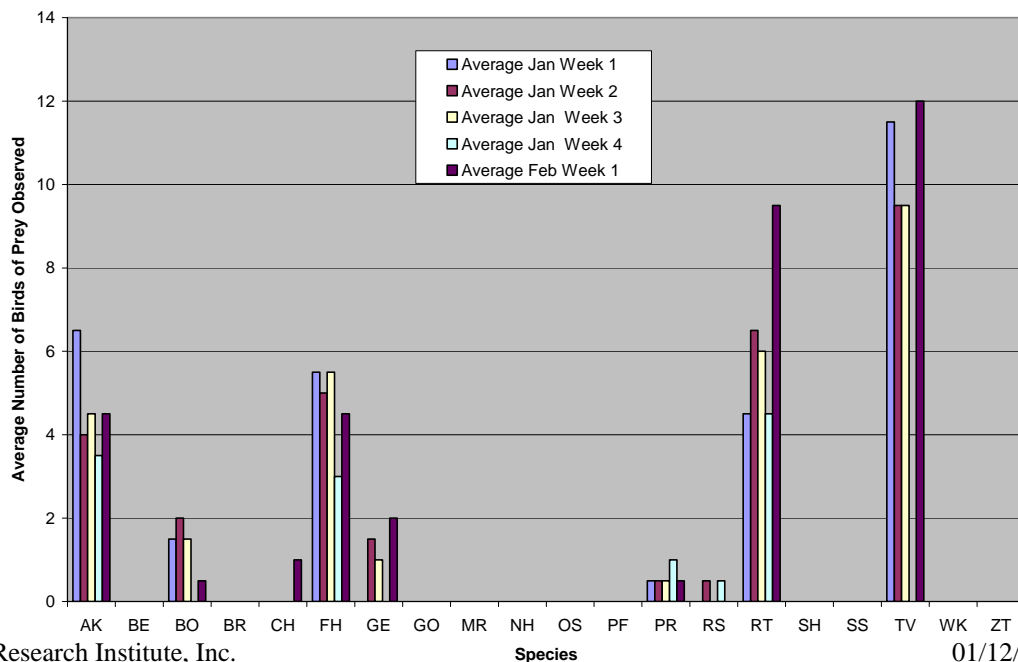
California dropped to an all time low reproductive rate of 12% (Bittner, Oakley, Lincer, 2003). The largest fires in California history occurred in the county in the fall of 2003 (i.e., Cedar, Paradise, and Olay fires in October 2003). The corresponding low numbers of wintering hawks in 2003 was expected (Table 1, Figure 3).

**Figure 2. Average Total Number of Raptors Observed Per Survey by Year**



- \*Site numbers for which data are combined.
- \*\* More data were collected in 2006; therefore, the number of raptors reported in 2006 reflects a higher number of observations; the 2006 column should not be compared with the columns from years 2002-2005.

**Figure 3. Average Number of Birds of Prey Observed Wintering in Ramona Grasslands - 2003\***



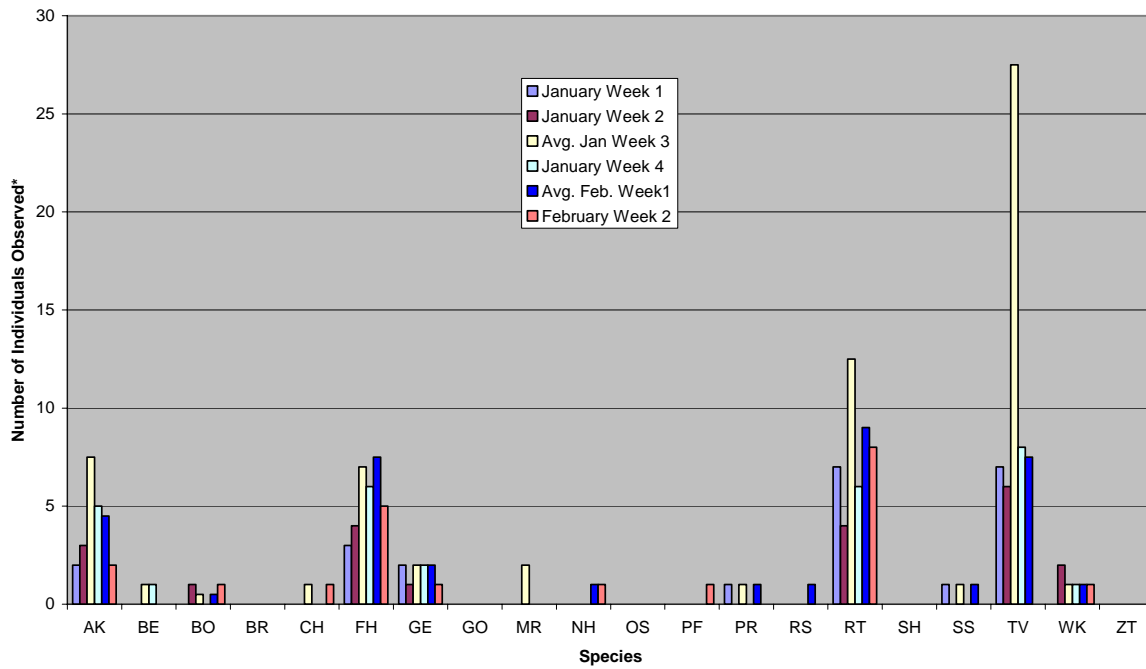
In 2004, light winter rains allowed new growth of vegetation and the wintering hawks responded to the increased prey base with more hawks wintering in the Grasslands. However, the hawks didn't reach what would be considered high numbers (Table 2, Figure 4). Table 2 displays the total count by day, with only some weeks having two days of data collection. For 2005, Table 3 displays data collected from one day's observation per week for each week in January.

**Table 2. Total number of birds observed wintering in the Ramona Grasslands (Sites 1-3) – 2004**

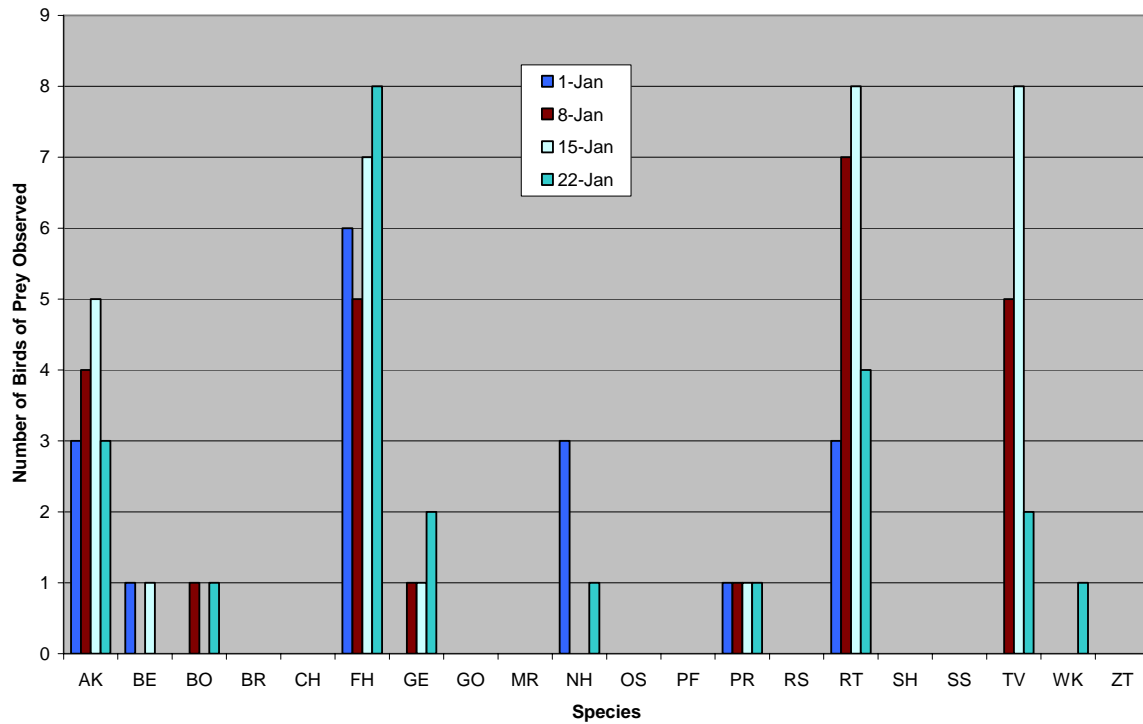
<b>Species</b>	<b>3-Jan</b>	<b>10-Jan</b>	<b>17-Jan</b>	<b>18-Jan</b>	<b>24-Jan</b>	<b>31-Jan</b>	<b>1-Feb</b>	<b>14-Feb</b>
AK	2	3	7	8	5	4	5	2
BE	0	0	1	1	1	0	0	0
BO	0	1	1	0	0	0	1	1
BR	0	0	0	0	0	0	0	0
CH	0	0	2	0	0	0	0	1
FH	3	4	6	8	6	7	8	5
GE	2	1	2	2	2	0	4	1
GO	0	0	0	0	0	0	0	0
MR	0	0	2	2	0	0	0	0
NH	0	0	0	0	0	0	2	1
OS	0	0	0	0	0	0	0	0
PF	0	0	0	0	0	0	0	1
PR	1	0	1	1	0	0	2	0
RS	0	0	0	0	0	1	1	0
RT	7	4	12	13	6	7	11	8
SH	0	0	0	0	0	0	0	0
SS	1	0	1	1	0	2	0	0
TV	7	6	25	30	8	8	7	0
WK	0	2	0	2	1	0	2	1
ZT	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>23</b>	<b>21</b>	<b>60</b>	<b>68</b>	<b>29</b>	<b>29</b>	<b>43</b>	<b>21</b>



**Figure 4.**  
**Number of Birds of Prey Observed Wintering in Ramona Grasslands - 2004\***



**Figure 5.**  
**Number of Birds of Prey Observed Wintering in Ramona Grasslands - 2005\***



In 2005, large numbers of ferruginous hawks wintered in the Ramona Grasslands (Table 3, Figure 5). The prey base had rebounded and the ferruginous hawks spent the entire winter in the Grasslands. In one non-Hawk Watch survey in early February 2005, D. Bittner, recorded 16 ferruginous hawks and 17 red-tailed hawks from sites 1-3. The WRI estimate for ferruginous hawks, based on the entire year's counts, was 22 ferruginous hawks wintering on the Ramona Grasslands (D. Bittner, pers. comm.).

**Table 3. Total number of birds of prey observed in the Ramona Grasslands (Sites 1-3) in 2005**

Species	1-Jan	8-Jan	15-Jan	22-Jan
AK	3	4	5	3
BE	1	0	1	0
BO	0	1	0	1
BR	0	0	0	0
CH	0	0	0	0
FH	6	5	7	8
GE	0	1	1	2
GO	0	0	0	0
MR	0	0	0	0
NH	3	0	0	1
OS	0	0	0	0
PF	0	0	0	0
PR	1	1	1	1
RS	0	0	0	0
RT	3	7	8	4
SH	0	0	0	0
SS	0	0	0	0
TV	0	5	8	2
WK	0	0	0	1
ZT	0	0	0	0
<b>Total by Week</b>	<b>17</b>	<b>24</b>	<b>31</b>	<b>23</b>

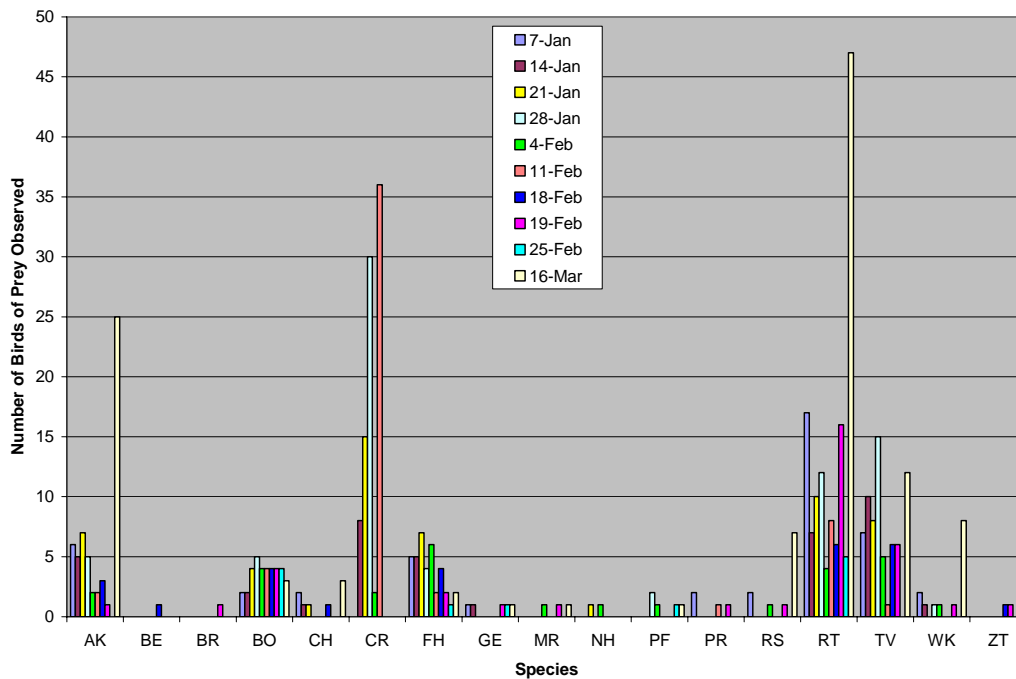
### **Current Data (2006)**

As stated before, the historic data for 2005 do not reflect the true raptor population of the Grasslands for that year. Because some data were compromised, only the information resulting from January is presented. If the additional data were available, 2005 would be seen as an exceptional year with high numbers of raptors observed throughout February and through, at least, mid-March.

The 2006 data were collected for a different purpose and are more specific, and more reproducible, than the historic data. Therefore, the 2006 data have been broken down into independent categories. Table 4 displays observations made from January through mid-March 2006, by date. Data listed in each dated column represent combined, non-duplicated, information collected at sites 1-3. Data listed in each 4-7 column represent similarly combined information collected at sites 4-7.

In 2006, the number of ferruginous hawks dropped to an estimated 7-8 birds wintering in the same Grasslands areas (Table 4, Figures 6a and 6b). The numbers for years 2003 and 2006 should be considered low for the Ramona Grasslands. Since the early 1990s, when casual records were kept by the Raptor Watch, 7-8 wintering ferruginous hawks are the lowest numbers of any year we have memory or records of in the Grasslands. WRI's best estimate from all the years of Hawk Watch observation (1988-2006) is an average of 15-17 ferruginous hawks wintering in the Ramona Grasslands.

**Figure 6a.**  
**Number of Birds of Prey Observed at Sites 1-3 in Ramona Grasslands - 2006\***





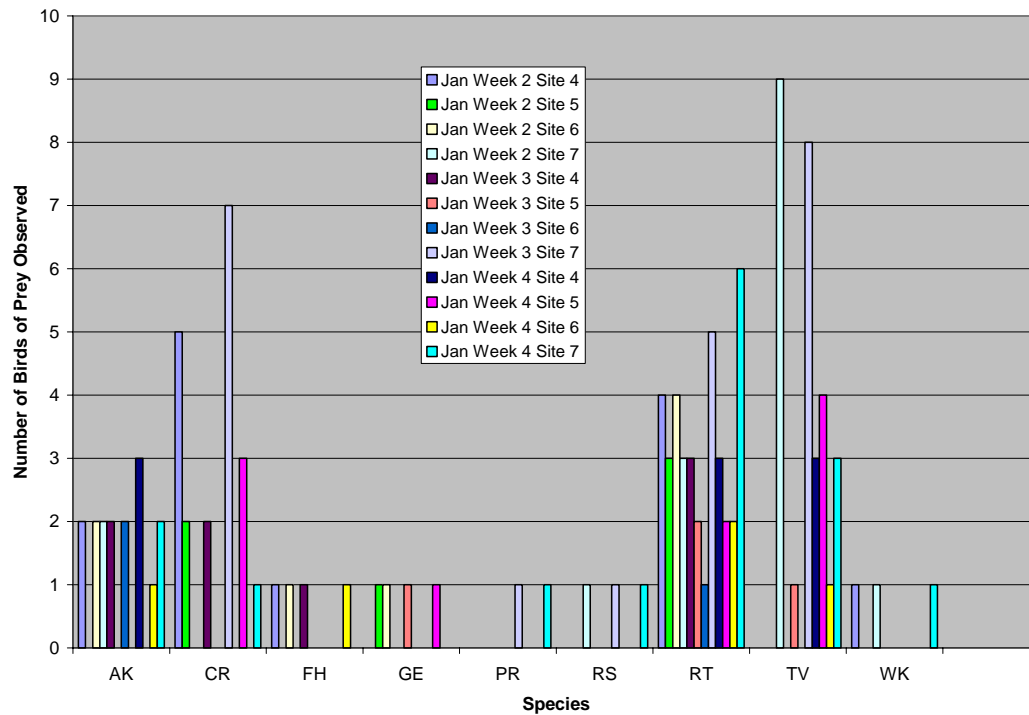
**Table 4. Total number of birds of prey observed wintering in Ramona Grasslands (Sites 1-7) – 2006\***

Date	7-Jan	14-Jan		21-Jan		28-Jan		4-Feb	11-Feb	18-Feb	19-Feb	25-Feb	16-Mar
Species /Sites	1-3	1-3	4-7	1-3	4-7	1-3	4-7	1-3	1-3	1-3	1-3	1-3	1-3, 7
AK	6	5	6	7	4	5	6	2	2	3	1		25
BE										1			
BR											1		
BO	2	2		4		5		4	4	4	4	4	3
CH	2	1		1						1			3
CR		8	7	15	9	30	4	2	36				
FH	5	5	2	7	1	4	1	6	2	4	2	1	2
GE	1	1	2		1		1				1	1	1
GO													
LO													
MR								1			1		1
NH				1				1					
OS													
PF						2		1				1	1
PR	2				1		1		1		1		
RS	2		1		1		1	1			1		7
RT	17	7	14	10	11	12	13	4	8	6	16	5	47
SO													
SS													
SH													
TV	7	10	9	8	9	15	11	5	1	6	6		12
WK	2	1	2			1	1	1			1		8
ZT										1	1		
<b>Total</b>	<b>46</b>	<b>40</b>	<b>43</b>	<b>53</b>	<b>37</b>	<b>74</b>	<b>39</b>	<b>28</b>	<b>54</b>	<b>26</b>	<b>36</b>	<b>12</b>	<b>110</b>

**\*Notes:**

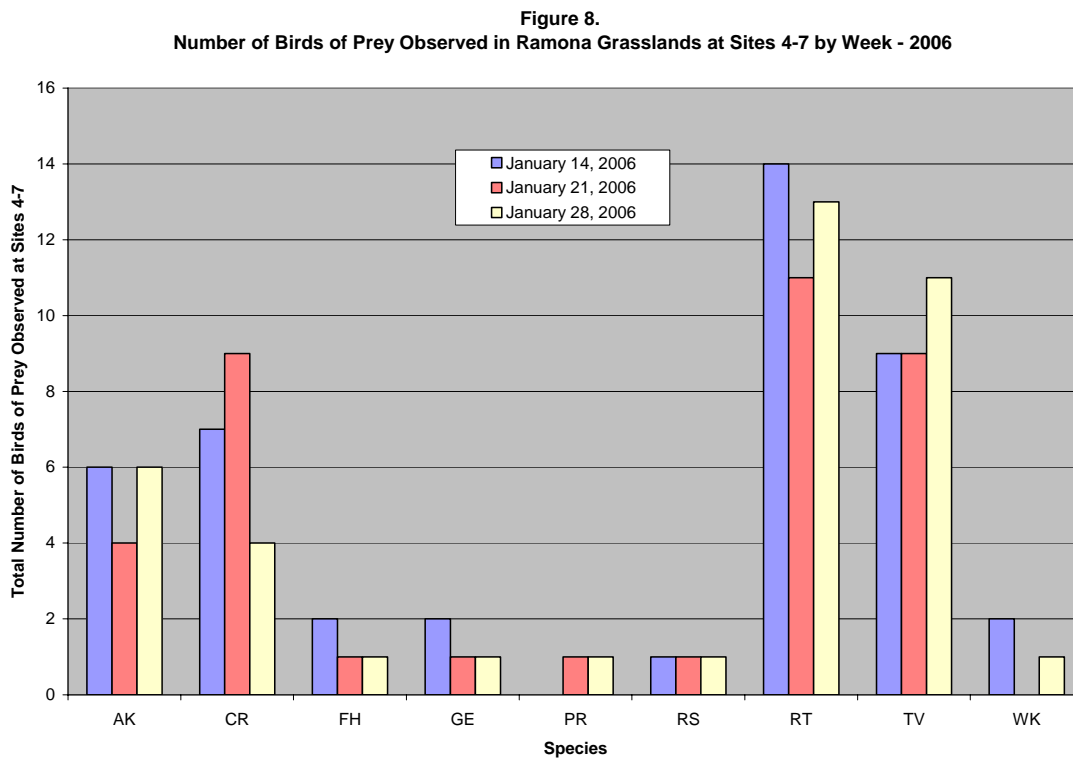
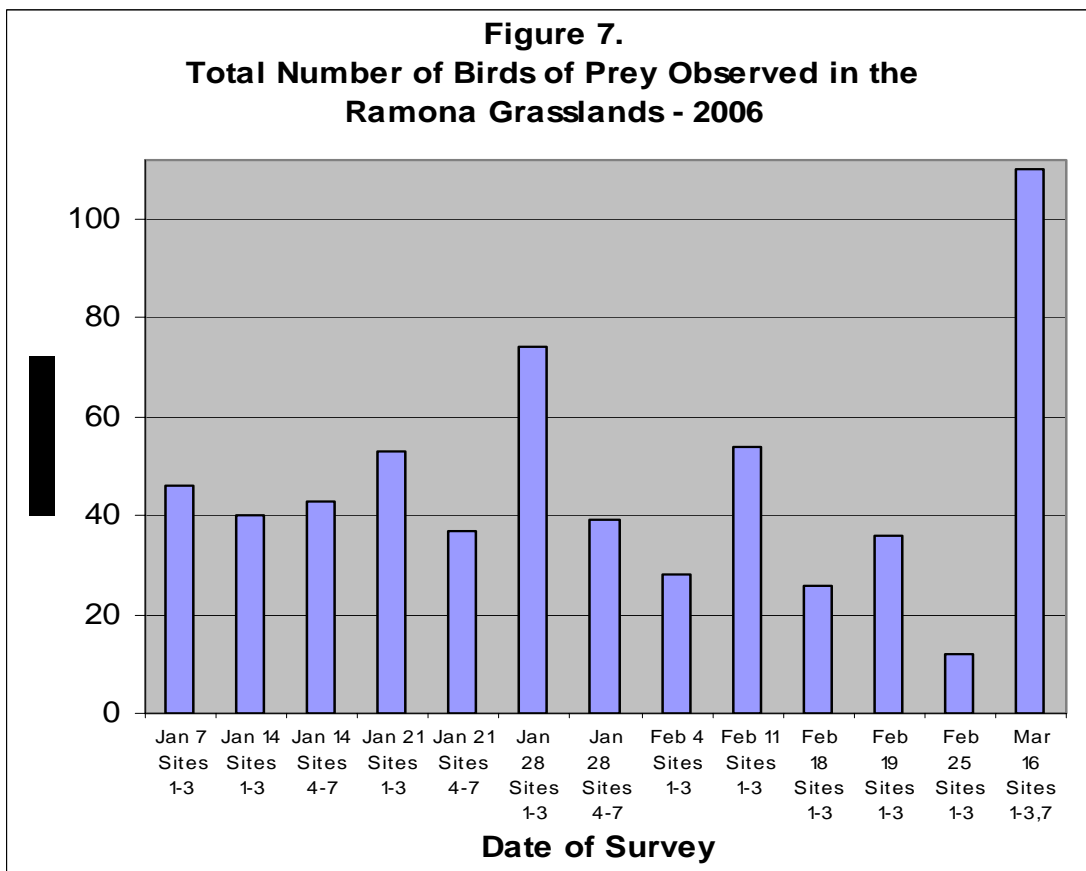
- Data surveys include three hours of observations by at least three biologists from 0900 – 1200
- 1-3 and 4-7 indicates observation at those numbered sites. Fifteen minutes of observations were conducted at each site during the period from 1200 – 1400 for sites 4-7.
- **The** 16 Mar survey was conducted by seven biologists from 0730 – 1200.
- Total number of observation hours for 2006: 34.5.

**Figure 6b.**  
**Number of Birds of Prey Observed at Sites 4-7 in Ramona Grasslands - 2006\***



In 2006, a final survey was done on March 16 with seven biologists. This survey may not be truly comparable to others in the same year since it was later in the season when some spring migrants may have been passing north, many females who were incubating in January and February may have been off the nest and flying with their mates, and it represented an increased level of effort relative to the previous surveys. These are possible explanations for the larger totals of March 16 (Figure 7; Sites1-3 and 4-7). Figure 8 provides a breakdown of raptors observed over 3 weeks in January, at sites 4-7.

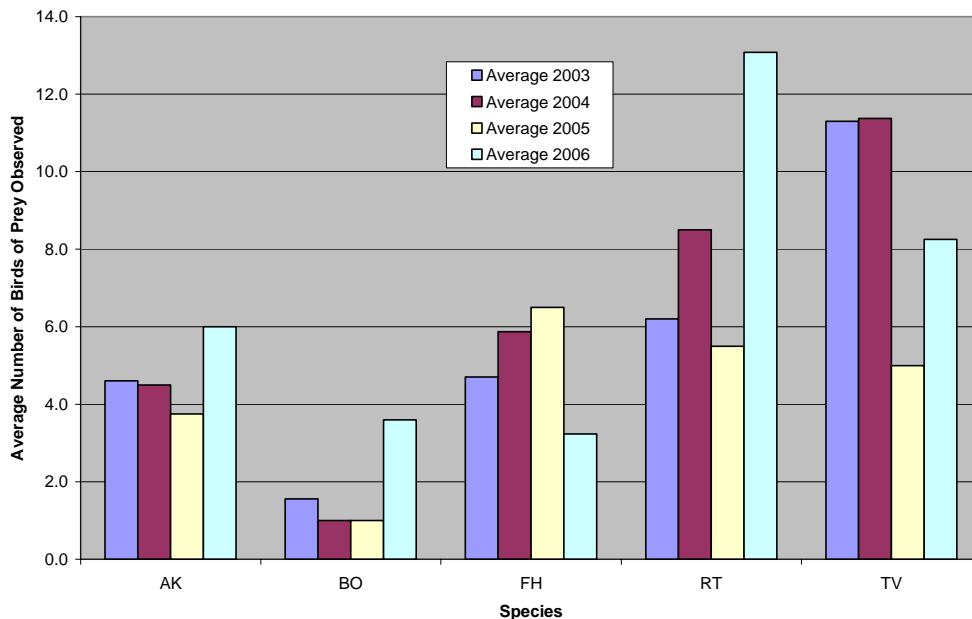
During all the above fluctuation in wintering raptors, the local resident population remains, basically, the same. Therefore, some of the numbers don't reflect the high variability from year to year in wintering birds (e.g., comparing red-tailed hawks vs. ferruginous hawks). Ferruginous hawks, therefore, are probably a better indicator of annual changes in the grasslands, in general, than are the resident red-tailed hawks. However, one must recognize that the numbers of ferruginous hawks we see wintering on the Ramona Grasslands are, to some unknown degree, a reflection of reproductive success on their more northern breeding grounds and survival during migration.



Breeding surveys done for this project, and others done by WRI (WRI 2005a,b), all indicate that the resident breeding population remains relatively stable from year to year. Drought may lower the expectation of fledgling survival but preliminary data (Lincer and Bittner, 2005) from the 2003 Cedar Fire indicate drought and fire combined delayed nesting dates by 3-4 weeks but not fledging success of active nests. Neither did the drought change the breeding population of breeding pairs of hawks in either the drought-only areas and or the drought and fire areas (Lincer and Bittner, 2005).

Some San Diego eagles and some hawks begin courtship and nest building in December. This is a month before WRI begins their winter Hawk Watches. Wintering raptors on the Grasslands are a combination of resident and non-resident hawks, eagles, falcons, kites, owls, and vultures. The number of wintering hawks and eagles found on the Grasslands is limited, in part, by resident raptor territoriality (D. Bittner, pers. comm.). Figure 9 displays the average number of selected raptor species during WRI winter Hawk Watches for 2003-2006 (please note that the data collection methods for each survey year were slightly different).

**Figure 9.**  
Average Number of Five Selected Raptor Species Observed Wintering in Ramona Grasslands During Hawk Watch (Sites 1-3) - 2003 through 2006

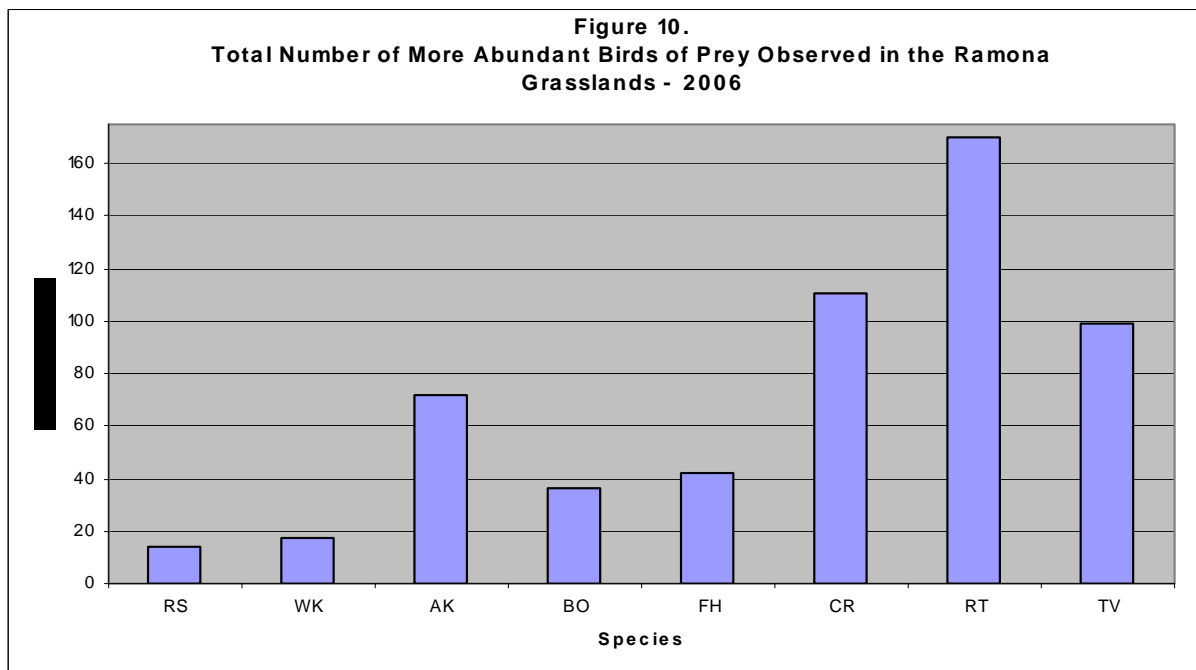


## DISCUSSION

No survey of the wintering raptors of the Ramona Grasslands should be based on a single year of observation but should be an average of multiple years, which allows for variations in weather and other environmental variables. During the years that we are reporting on (2003-2006), the weather alone varied considerably.

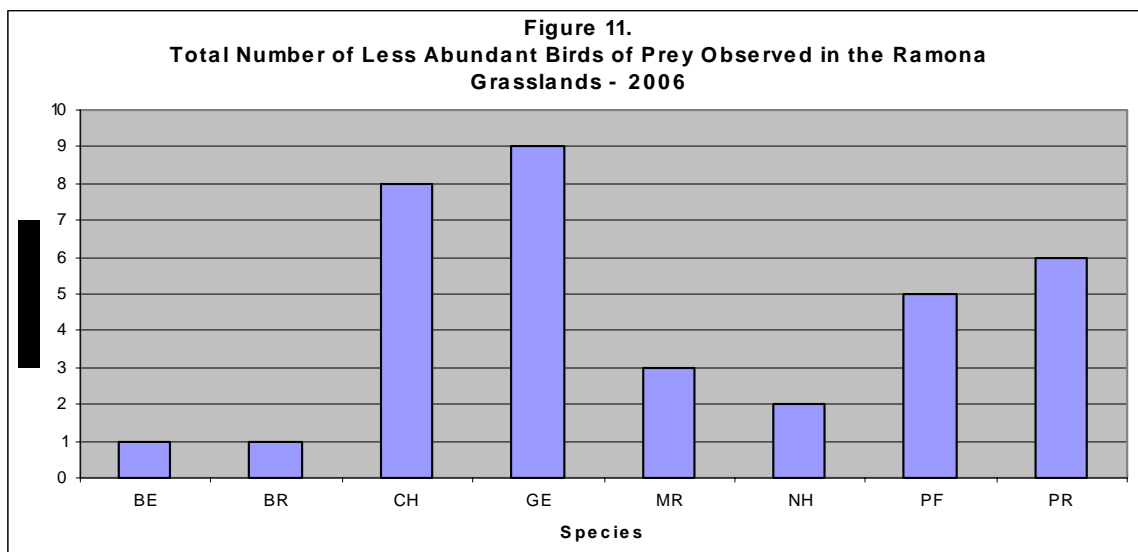
### Individual Species Considerations

Figures 10 and 11 display the numbers for the more and less abundant raptors, respectively, that were observed in the Ramona Grasslands.



Very few juvenile **red-tailed hawks** are present in the winter counts because the adult breeding pairs occupy almost all the available territories and drive out all other red-tailed hawks from their territories (D. Bittner, pers. comm.). This leaves little room for non-resident red-tailed hawks. Therefore, almost all the redtails counted in the Ramona Grasslands are breeding adults. This scenario is applicable to the red-shouldered hawk as well.





The **red-shouldered hawk** is a woodland species and occasionally frequents the open Grassland but more often occupies habitat all around the Grassland. Therefore, the frequency of red-shouldered hawks being observed is low in most of the tables. However, we can often hear these birds calling from the riparian woodlands while standing in the Grasslands. This hawk is a valuable (D. Bittner, pers. comm.) raptor to the Grassland community but will never be revealed as abundant in any survey done in the Grassland because it is not usually observed in the open areas.

The **ferruginous hawks** are not seen as competition by the abundant nesting red-tailed hawks so the red-tails do not show much interspecific aggression towards them. This allows a dense wintering population, as in 2005, when at least 22 ferruginous hawks were present at one time. These migrants from Montana, Utah, Northern Nevada and Northern California are the largest hawk in North America. The Ramona Grasslands is likely to become more important as this species continues to decline at both the regional and local level. Early research work in progress indicates that loss of good wintering grounds is a significant contributor to the decline (Bechard et al.1995).

**Golden eagles** are defending their territory against all potential competition during the winter Hawk Watches and winter survey time. Aggression has been observed any time a non-resident eagle appears in the Grasslands. The resident golden eagles usually chase others out within hours or days of their arrival in the Grasslands. Juveniles that are easily distinguished by their partial white tails and wing patches will be tolerated longer but all adults or sub adults are pursued

immediately upon sight. By February, the resident female is incubating; therefore, only one golden eagle will be seen in the Ramona Grasslands for at least half of the winter surveys.

**Bald eagles** are, occasionally seen wintering in the grasslands; most-recently, juveniles have been documented. This eagle is tolerated by the resident golden eagles better than other golden eagles since interspecific competition is not as strong as intraspecific competition. However, when bald eagles are feeding, the golden eagles will try to take away their food. Therefore, conflicts do arise over food and may cause some bald eagles to seek other foraging areas. In wet years, when there is an abundance of waterfowl on the Ramona Grasslands, bald eagles are seen more frequently.

**Peregrine falcons** are highly transient in their migration and wintering. Migrant peregrine falcons arrive in the Ramona Grasslands in August and continue to show up in small numbers throughout the fall and winter. Most peregrines continue on to Mexico, Central America or South America in migration for over-wintering. However, approximately 15-20 peregrines winter in San Diego County (WRI 2005) at the present time. Two or three of these will frequent the Ramona Grasslands on a regular basis. In 2006, two separate peregrine falcons were seen pursuing killdeer over the Ramona Grasslands.

The **American kestrel** is the smallest and most numerous of the falcons that occur in the Grasslands. During the winter months, several resident pairs and a few migrants take up territory and remain for the season.

**Turkey vultures** have a roost in the Ramona Grasslands in which about 30 individuals roost each night. These vultures fan out each day in a radius of about 15 miles searching for dead animals. Therefore, unless we count the roost just before dark, we are likely to only see 7-12 turkey vultures at a time in the Grasslands. When a large dead animal is in the grassland such as a stillborn calf or shot coyote there may be 25 or more vultures feeding on the carcass. During fall and spring migration, the roost may temporarily swell to 60 or more vultures then drop back to 30 in just a few days when those migrant birds move on. In the Ramona Grasslands, turkey vultures are year round residents. The fall migrants pass over San Diego and head to Baja and mainland Mexico in September and October. These same birds return back over San Diego in March.

The **merlin**, another true migrant, nests in northern pine forest and spends the winter in San Diego and points south. The Ramona Grasslands supports only a few of these fast flying, bird-eating hawks that are constantly on the move. Easily overlooked by the casual observer or mistaken for the smaller kestrel, merlins winter in numbers that are between zero and four in the

Ramona Grasslands. For several years, a light colored Merlin frequented the WRI headquarters. This merlin was seen by many at Hawk Watch during at least three winters.

**White-tailed kites** are highly variable in both their breeding and in wintering numbers in San Diego County, including the Ramona Grasslands. During the 2006 survey, they were in low numbers and just starting a breeding comeback. In 2005, as many as 29 white-tailed kites were observed roosting at one time on the Country Oaks Ranch in the Ramona Grasslands. More typically, two or three are seen if the entire Grasslands area is surveyed. In March of 2006, three pairs of kites produced at least nine young for a total of 15 kites in the Ramona Grasslands. This is the highest numbers since 2001.

The **Cooper's hawk** is not considered a grassland species. They are birds of the woods but are common in all the surrounding brush and woodland canyons around the Grasslands. The Cooper's hawk is one of the more common hawks observed between 7:00AM and 9:00AM in the areas surrounding the Grasslands. Even though the winter survey data counts indicate low numbers observed for this species, there are more around the edges of the grassland than the surveys indicate (J. Lincer and D. Bittner, pers. comm.).

**Prairie falcons**, like the peregrine falcon, are transient and mobile and only two or three winter in the Grasslands in any given winter. These falcons have responded to the presence of a trained falcon or a hawk flapping in the hand, which they are drawn to for competitive reasons or think they may have food. Most falcon observations have been of birds perched or low to the ground in pursuit of prey. However, most of the falcons high overhead are probably never counted.

**Zone-tailed hawks** are considered a rare breeding bird for San Diego County but are a casual visitor and show up in the Grasslands each year, usually in the company of turkey vultures. They probably occur more often than reported, since they mimic turkey vultures and are dismissed as such by many observers.

**Northern harriers** do not breed in the Grasslands at this time but they are a true grassland species and a winter migrant but they occur in low numbers in the Ramona grasslands. Individuals are present for only a day or two, which suggests that something in the Ramona Grasslands is missing at the present time for this to be a good wintering environment for the species.

The **great-horned owl** is the largest owl present in the Grasslands. There are only three pairs of great horned owls breeding in the grasslands. These owls are associated with red-tailed hawk pairs from which they extract a nesting platform each year by taking over the hawk's nest from

the previous year. Additionally, there are several other pairs in the Oak Woodlands surrounding the Grasslands. These residents and their young also make up the wintering population. These owls, like the eagles, nest early and prevent migrant owls from establishing winter territories.

**Barn owls** are mostly established due to artificial nest boxes, which are abundant in the study area. Ten boxes are known to WRI researchers, eight of which are occupied by owls. Barn owls do not respond to calls well and are difficult to count. They typically have three to five young usually in January or February. The best estimate for a wintering population is about 50 owls including young.

**Burrowing owls** are a native resident and a migrant. The population in the Grasslands is currently a combination of three to four wild migrants and WRI-introduced and wild-bred young from the introduced owls (J. Lincer and D. Bittner, pers. comm.). WRI reintroduced 16 (formerly captive and captive-bred) individuals into artificial burrows (ABs) in the spring of 2005. Two pairs produced 14 eggs and both clutches were predated. A third clutch (possibly, a recycling of one of the predated clutches) produced 5 eggs and 4 young, which we color-banded. Most over-wintered in the Grasslands. In the winter of 2006, there were at least ten burrowing owls in the Ramona Grasslands, forming at least 3 pairs in the spring of 2006, which used the ABs at WRI. Two pairs bred again in the WRI ABs, producing 9 young which WRI biologists color-banded this spring (2006).

The **goshawk** is a rare bird in the Ramona Grasslands. In March of 2002, one adult goshawk flew over the WRI headquarters in the Grasslands during the spring migration. On March 24, 2006, observers identified a juvenile and an adult goshawk on the Monte Vista Ranch Preserve just two miles south of the Ramona Grasslands. These hawks are only seen at rare intervals in migration in the Ramona Grasslands.

The **sharp-shinned hawk**, like the Cooper's hawk, is a woodland, bird eating, hawk that would not be expected to be seen in a Grasslands. The occurrence of sharp-shinned hawks is rare and quick. They are usually in migration or passing across the Grasslands to reach a wooded valley.

## **Management Considerations and Practices**

The Ramona Grasslands support a unique assemblage of plants and animals that is important to the biodiversity of San Diego County. While hawks, owls and eagles are the subject of this report, several other sensitive and listed plants and animals also occur in these same habitats. One endangered animal is a rodent, the Stephens' Kangaroo Rat, which is occasionally eaten by owls.

One raptor species that is in decline and is listed as of special concern is the **ferruginous hawk**, which winters in the Ramona Grasslands in densities of up to 22 hawks in just over 5,000 acres. This is likely the highest density known in Southern California. The number of these hawks observed wintering in the Ramona Grasslands varies from 6-22 depending on weather, rain, and therefore food supply of appropriate rodents.

Another unique raptor to the grasslands is the **burrowing owl**. This species is in serious decline throughout its range with the exception of Imperial County, where roughly 70 percent of the remaining state's population can be found living under man-made and potentially ephemeral conditions. After 1999, no burrowing owls were known to breed in the Ramona Grasslands. Currently, there are 8-13 burrowing owls in the Ramona Grasslands. Most of these are as a result of owl reintroduction by WRI in cooperation with CDFG and the Service over the past two years.

During 2005-2006, 13 wild young burrowing owls were produced from four pairs with partial or total captive-bred history. Prior to that, WRI (2004-2005) breed 3 pairs in captivity released 7 adults and 9 young into artificial burrows in the Grasslands near their headquarters. WRI installed 30 artificial burrows to assist the reintroductions and all nesting has taken place in these burrows. Each year, at least three or four wild adults winter in the grasslands and, although the wintering owls were not banded, it appears that at least two may have stayed and bred with the WRI-released burrowing owls. Automobile collisions are currently the highest known cause of mortality with at least 5 car impacts from high speed driving on Highland Valley and Rangeland Roads.

High speed driving has a number of management concerns for wildlife and cattle, as well as for humans. Several cars wreck each year and break through the fences. Numerous utility poles and fences have to be replaced annually. In July of 2006, a grass fire of approximately 15 acres was started by a high-speed driver who lost control on two turns then broke through a wooden fence, colliding with a well causing the car to catch fire. In August 2006, another car hit an electric pole then crashed through a barbed wire fence. Each year hundreds of small mammals and birds are



killed by automobiles on Highland Valley Road, alone. Among these are the already-mentioned burrowing owls, great-horned owls, red-tailed hawks, turkey vultures, and long-tailed weasels. Wildlife and school crossings, in addition to the Grasslands Preserve status, should give some leverage to getting the speed reduced on Highland and Rangeland Roads. We feel that much of the danger to wildlife and humans can be significantly reduced and most local residents would support such an effort.

The Ramona Grasslands supported two pairs of golden eagles until 2003. The Santa Maria Creek on the Cagney Ranch was the approximate boundary between the two pairs. One pair, known as the Iron Mountain Pair, nested on Sole Peak, which is in Poway but overlooks the Ramona Grasslands. This pair foraged on Cagney Ranch, Esquilargo, the ranches south of State Route 67, and Cumming Ranch in the Ramona Grasslands. Due to continuous nest disturbance on Sole Peak by climbers and hikers since 1996 and the 2003 Cedar fire, which burned the nest sites, no nesting attempts have occurred since 2003 (D. Bittner, pers. comm.). The last successful year when young were fledged was 1998. After that, each nesting attempt was met with human disturbance (D. Bittner, pers. comm.), leading to nest failure. WRI, under contract, will reconstruct the nests on Sole Peak in 2006 to stimulate new eagles to assume the territory.

The second pair of golden eagles nests on private land in Bandy Canyon. The future of this pair's primary foraging area is being secured by the grassland acquisitions lead by TNC. The nest cliffs are being secured by legal negotiations with the landowner and the county to place a conservation easement on the cliffs. Planning proposals currently being considered for future implementation will jeopardize the golden eagles nesting success. Trails proposed through Bandy Canyon will expose to the general public a beautiful waterfall and an impressive set of cliffs. These two natural wonders will act as magnets to attract climbers and swimmers. The word of mouth club and books like Jerry Shads "Afoot and Afield in San Diego" will encourage people to recreate and hike in these areas. Once the public is exposed to, and has knowledge of, these areas, enforcement to prevent access to climbers and swimmers will be impossible.

Two young eagles were "hacked out" by WRI in 2006 in the Ramona Grasslands. The initial hacking effort was supported by The Nature Conservancy, Institute for Wildlife Studies, The National Park Service, and CDFG. One of the eagles was brought from Santa Cruz Island as part of an effort to preserve the endangered Island Fox while the second was a runt being starved by an older sibling. It is possible that this effort could start some new nest area fidelity if these eagles survive to maturity.

**Poisoning of ground squirrels** has been, and still is, a significant factor in the mortality of some raptor species. Poisoning under the guise of agriculture is legal and also lethal to squirrels and

those animals unfortunate enough to capture and eat a recently-poisoned squirrel. Even at the Wild Animal Park, several eagles and vultures have been accidentally killed by the poisoning of ground squirrels (D. Bittner, pers. observation). In San Diego County, WRI has found poisoned eagles in the nest and in fields after ingesting a squirrel with a mouth and belly full of poisoned grain. The Ramona Grasslands has a long history of poisoning ground squirrels and poison on nearby private land affects raptors throughout the Grasslands. Cooperative agreements should be made so that all understand the need and feel that they are doing a good deed by cooperating. Providing barn owl boxes and establishing other raptor artificial nesting and perching structures might be a way to get cooperation and avoid poisoning by letting nature's predators control the rodent population.

Often the fear of regulatory constraints, as a result of having a sensitive species on the land will lead to landowner actions that decrease the suitability of that land. For instance, after WRI suggested using a city-owned mitigation site for the City of San Diego to reintroduce burrowing owls, the local tenant farmer, not wanting to be restricted by burrowing owls, poisoned the site, killing hundreds of ground squirrels in a few days. Where there was a colony of hundreds of squirrels there now exist none. What could have been a successful reintroduction of burrowing owls on City-owned land is now a biological desert.

Ground squirrels and gophers make up the significant biomass that supports the large raptor population in the Ramona Grasslands. Good management of the grasslands will allow for the expansion of the ground squirrel population so that the coyotes, bobcats, and raptors have a chance to eat and help maintain a balanced ecosystem. Eventually, enough ground squirrel burrows will exist such that artificial burrows for burrowing owls may not be necessary.

**Shooting coyotes and bobcats**, although legal in the state, has changed the balance of nature in the Grasslands. Individuals have claimed to shoot over 35 per year in the grasslands ( D. Bittner, pers. comm.). Due to the efforts of WRI and several citizen volunteers, shooting has declined but not stopped completely. Since foxes, bobcats and other animals have been found shot it is assumed that badgers and other species that occasionally appear in the grasslands may be held back from developing a population by frequent shooting. One incident reported and photographed by a WRI member even involved scalping of the coyote. There are local individuals who feel that this area is their life long hunting area and it is going to take vigilance, consequences, and enforcement to change their habits.

**Electrocution** on distribution power lines has been, and continues to be, a leading cause of death for many raptor species especially the larger species. In the Ramona Grasslands, the San Diego Gas and Electric Company (SDG&E) has cooperated by placing insulators on the center

conductors and placing insulating rubber over jump wires leading to transformers. Poles with transformers are responsible for 67% of all raptor electrocutions (*in* WRI 2000, APLIC 1996). Poles with transformers make up less than 15% of all poles. However, the Ramona Grasslands still have electrocutions and line strikes that occasionally kill hawks and eagles. Poles should continue to be identified and reported to SDG&E if they pose a threat to any raptors.

**Tree removal/replacement to eliminate exotics** should be planned over a long period of time to allow for native trees to attain a size large enough to accommodate nesting raptors. The Hardy Ranch, at the east end of the Cagney Ranch, for example, has red-tailed hawks, red-shouldered hawks, white-tailed kites, Cooper's hawks and great-horned owls nesting in eucalyptus trees in two woodlots. Even Vermillion flycatchers occur in the southeastern portion of the woodlot. Rapid removal of these exotics would leave these species without a nesting substrate. Planting of native oaks and cottonwoods among the eucalyptus and selective thinning would eventually allow for the total removal of the eucalyptus trees. This may be a 40-50 year management plan but allows all wildlife species to thrive as Man tries to undue 200 years of his mismanagement.

**Artificial nesting structures** are desirable for many species and some raptors can thrive in these structures. American kestrels, barn owls, great-horned owls and screech owls all suffer from Man's cutting and removal of big dead trees with hollows. Unfortunately, it takes decades and centuries to produce new trees with these natural hollows. Burrowing owls also take well to artificial structures and reintroductions at WRI are proving their worth in reintroducing the owls to the Grasslands. Additional structures should be considered throughout the Grasslands to help this and other species regain a foothold and stabilize a self-sustaining population.

**Reintroduction of extirpated species** should be considered for select species that have a high degree of probable success. In addition to the burrowing owl, another possible raptor species for consideration is the Swainson's hawk. This is a species listed in the MSCP as a species to monitor and is no longer a breeding bird in San Diego County. The Swainson's hawk was once a common hawk in San Diego County's grasslands. This, and other species, merit consideration for reintroduction.

**Trails** for public access need to be carefully considered *before* they are located and opened. Once a trail is opened the public, the public will not so easily take to closing them. Wildlife should take first priority before trails and the public's right to access the Grasslands. The Grasslands, like all San Diego County lands will be part of the MSCP, and eventually protected under permits from the U.S. Fish and Wildlife Service and the California Fish and Game, and County of San Diego ordinances. The goal of the MSCP and other HCPs is to provide sufficient space and habitat so that San Diego County will have all of its wildlife and plant species in 50

years and still have development in other designated, but less environmentally sensitive, locations. In reviewing the San Diego MSCP, which is the model for the North County MSCP, under which the Ramona Grasslands will be preserved, preservation of wildlife and plant diversity is the stated goal. Losing sight of this master goal could cause great legal and ethical repercussions.

The Grasslands have seasonal requirements that apply to raptors as well as other sensitive species. Wintering hawks and owls and resident nesting golden eagles will not continue to use the Grasslands if they are harassed from perch to perch by hikers, horseback rider, or bikers. Some resident nesting hawks such as red-tailed hawks are much more tolerant of people but it is contrary to the MSCP goals to limit the raptor species in this preserve to a few people-tolerant species at the exclusion of all others.

Species such as the ferruginous hawk arrive from their northern nesting grounds as early as September but most arrive in November/December and stay until late March. During these five months, these hawks should be allowed to rest and forage without disturbance by public access across the grasslands. Currently, observation of almost the entire grasslands can be made from public roads on both the east and west ends of the valley. Therefore, if a few carefully placed viewing locations were established, no one would be denied the privilege of observing the Grasslands and its biodiversity if there was no new trail access.

Limited, hosted excursions into the grasslands might also be a possibility that could satisfy the public access issue. Seasonal closures are another possibility but these would not solve the disturbance at the golden eagle nesting area. WRI is engaged in a long-term monitoring project of the San Diego golden eagle population (now going into its 18<sup>th</sup> year). One of the facts we have learned is that golden eagles will often fly from the nest at a distance of ½ mile if a person on foot approaches a nest site. Three temporally related things happen when eagles are disturbed at a nest site.

- First, from December through January, nest building is occurring. During this period, disturbance can cause nest site abandonment and the loss of reproduction for a year.
- Second, from late January through March, eagles are incubating (42-day incubation). Disturbance during this time can cause chilling of the egg resulting in embryonic development problems and death of the embryo. Ravens can also see the female leave the nest and eat the eggs while she is off the nest. These actions, again, result in the loss of reproduction for the entire nesting season.

- Third, from March through May, very small eaglets are in the nest and are subject to chilling and death if really small, predation by hawks, ravens and even great-horned owls if the eagle is flushed late in the day. In late May and June, the eaglets are big enough to thermoregulate and protect themselves but are entirely dependent on the adults for food until July.

Therefore, the only time that the eagles would not be disturbed at the nest site would be August through November and even then they roost on the same cliffs on which they nest. There is a reason that golden eagles have declined by 50% in San Diego County and that is, of course, people. Failure of the Ramona Grasslands managers to recognize the problems people will create by having too much access will result in a net loss of wildlife species, decreased diversity, and the failure of the preserve to provide the wildlife reserve environment for which it was established.

**Fencing** is necessary for many reasons but the goal should be to minimize all fencing to that which is absolutely necessary. They say good fences make good neighbors. However, two reasons for minimizing fencing is to keep the Ramona Grasslands aesthetically pleasing to the viewing public, and second to allow wildlife to move freely throughout the grasslands. Barbed wire fencing can be lethal to wildlife and we have documented golden and bald eagles, pronghorn mule deer, white-tailed deer coyotes and dogs all hung to die by getting their legs and wings wrapped in barbed wire while jumping over or pursuing prey through the fence (D. Bittner, pers. comm.). Grazing should be controlled in certain areas but permanent fences may not be the answer in all cases.

## RECOMMENDATIONS

The following recommendations are meant to be applicable to more than just the Cagney Ranch and environs. If initially applied to the more limited Cagney area, however, the techniques can be fine-tuned, as part of a pilot effort, before they are applied to the Ramona Grasslands, as a whole.

1. Reduce vehicular speed limits on major roads that traverse the Grasslands.
2. Discourage the poisoning of California ground squirrels and other small mammals. Provide natural control alternatives through the installation of nest boxes for barn owls, screech owls, and kestrels and artificial burrows for burrowing owls. Provide guidelines for proper application of chemicals, where they are absolutely necessary, with the objective of minimizing mortality to non-target species.



3. Minimize shooting of coyotes, raptors (e.g., red-tailed hawks, turkey vultures, golden eagles), and other wildlife by posting “No Hunting” signs and encouraging the public to report those who are observed needlessly killing protected wildlife.
4. Post educational signs that explain what is being done to properly manage the Grasslands and why.
5. Continue to work with SDG&E to make relevant utility poles “raptor safe.”
6. Establish a local public call-in program, which would allow the citizenry to report raptor electrocutions, illegal shooting, and other management problems that need to be dealt with in a timely manner.
7. Develop a long term Tree Management Plan that would address the timely planting of native oaks, cottonwoods, willows, sycamores, etc. and the scheduled removal of eucalyptus and other exotics, as these natives achieved a functional size. There are several other potential actions, but the carrying capacity of the Grasslands for tree-nesting raptors could be substantially increased by simply adding several well-placed, and well-separated, trees throughout the open spaces
8. Consider comprehensive re-introduction programs for burrowing owls, ferruginous hawks, golden eagles, Swainson’s hawks, badgers, black-tailed jackrabbits, and perhaps other species that were previously more common throughout the Grasslands.
9. Do not commit to any trail system prematurely. Locate pedestrian and equestrian trails that are consistent with MSCP permitting, only *after* the appropriate site-specific and species-specific risk assessment analyses have been conducted by professionals and reviewed by third-party peers and/or a Scientific Advisory Committee.
10. Limit fencing to that absolutely necessary to implement resource management.
11. Continue the acquisition of Grasslands properties (and adjoining habitats that provide a management buffer) from willing sellers.
12. Initiate a coordinated public education program, which would include the above concepts. Presentations should be made through the local school programs, field trips, the Ramona Country Fair, the Ramona Rodeo, WRI’s annual Hawk Watch, etc.

## LITERATURE CITED

- Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute and the Raptor Research Foundation. Washington, D.C.
- Bechard, M.J. and J.K. Schmutz. 1995. Ferruginous Hawk *Buteo regalis*. In The Birds of North America (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union. 172:1-20.
- Bittner, J.D., J. Oakley, and J.L. Lincer. 2003. Golden Eagles in a Drought. Paper presented at the 2003 Raptor Research Foundation Conference, Anchorage, Alaska.
- Lincer, J. and J.D. Bittner. 2005. Post-Fire Raptor Monitoring Report. Prepared for Dr. Mick Hager, Executive Director, San Diego Natural History Museum and the San Diego Foundation. 20 January.
- WRI (Wildlife Research Institute, Inc.). 2000. Critical Areas for Raptor Electrocutions and Collisions in SEMPRA Service Area. Authors: J.D. Bittner and J.L. Lincer Prepared for Semptra Energy, San Diego by Wildlife Research Institute, Inc. July 20.
- WRI (Wildlife Research Institute, Inc.). 2005a. Final Report-NCCP/MSCP Raptor Monitoring Project (January 1, 2001-December 31, 2003. Authors: J.L. Lincer and J.D. Bittner. 31 March.
- WRI (Wildlife Research Institute, Inc.). 2005b. Final Report for NCCP/MSCP Raptor Monitoring Project-Golden Eagles of the San Diego Multiple Species Conservation Plan Area 2001-2003. Authors: J.D. Bittner, J.L. Lincer, J. Hannan, and J. Oakley. Prepared for California Department of Fish and Game. 31 March.

## **APPENDIX A**

### **WRI's Involvement In The History Of The Ramona Grasslands Preserve**

From the first days of preservation efforts for the Ramona Grasslands it has been about Birds of Prey (i.e., raptors). These raptors still are a driving force for most of the people working many thousands of annual volunteer hours to make the Ramona Grasslands a preserve.

In 1988, Dave Bittner arrived in Ramona looking for a house. Being totally unfamiliar with the area he was just driving around when, on what is now Esquilargo, he observed two juvenile Golden Eagles foraging and being attacked by red-tailed hawks. Across the road two adult Golden Eagles were soaring over the Oak Country Ranch then proceeded to Cagney Ranch and, after being joined by the two juveniles, all four departed for Davis-Eagle Ranch. Further down Highland Valley Road, he saw four more Golden Eagles on the Cummings Ranch (2 adults and 2 juveniles). This total of 8 Golden Eagles, which were from the Bandy and Iron Mountain Golden Eagle territories, has not been seen since. The year 1988 appears to be the last year both Bandy and Iron Mountain Golden Eagles pairs fledged two young each in the same year. This day marked the beginning of Mr. Bittner's and WRI's interest in saving the Grasslands for future generations.

In the late 1980s Fred Sproul, botanist and naturalist, and Tom Stephen, a falconer, started a Raptor Watch under a non-profit called the Iron Mountain Conservancy. This modest public event started with four people and grew. In 1990, Dave Bittner, wildlife biologist, joined them in their efforts and the crowds grew to as many as 30 people and the press started to pick up on their efforts. The seeds of public awareness were beginning to be planted.

When Dave Bittner and Dr. Jeff Lincer, wildlife biologist, formed the Wildlife Research Institute, Inc. (WRI) in 1996, they were approached by Fred Sproul and Tom Stephen to take over the raptor watch. The name was changed to "Hawk Watch" and is now conducted 10-20 times a year and in 2006 had as many as 219 people at a single Hawk Watch, with a season's total in excess of 1400 people. Newspapers, TV and radio cover the event each year. Because hawks and eagles are visible to the public during daylight hours, Hawk Watch has become the principle public awareness vehicle for preserving the grasslands.

In the early 1990s, the County of San Diego proposed an expansion of the Ramona County Airport. This included an expansion of the airports infrastructure, expansion of service levels of the airport, an extension of the runway, industrial parks, new roads that would traverse the grasslands, and other developments that were found by the local people of Ramona to be very objectionable. Carol Angus, a local resident, organized a citizens' group to fight this development by the county and hired an attorney.

After several years of negotiations and compromises, the County of San Diego backed down on some of their plans and limited the development and runway expansion to that necessary for safety. Then the U.S. Fish and Wildlife Service (Service) was advised by a local Ramona biologist that the endangered Stephens' Kangaroo Rat was present on the site and this further altered the county's plans for airport expansion.

In 1996, WRI and Carol Angus's citizens' group combined efforts to begin a coordinated effort to preserve the area now known as the "Ramona Grasslands." Preliminary wildlife and plant studies were gathered and a plan with maps was put together. This was first presented to The Nature Conservancy in their Temecula Office in 1996. No immediate action resulted from that meeting but a long campaign began to get out the word and educate local authorities of the Grassland's importance.

In June of 2000, WRI called a meeting of all agencies and interested parties to hear a presentation about the Ramona Grasslands. The attendees at this meeting, held at the California Fish and Game (CDFG) office on Viewridge Dr., included CDFG, the Service, Trust for Public Lands, The Nature Conservancy, Endangered Habitat League, County of San Diego, Vernal Pool Society, Wildlife Research Institute, National Wildlife Refuge System, California State Parks, and others. After the WRI formal presentation, The Nature Conservancy representative asked if they could take the lead on the effort to preserve the Grasslands and from that meeting a cooperative effort began between several governmental agencies and non-profits to preserve the Grasslands.

That same year, Tom Carr and Janet Gilbert, local concerned Ramona residents, bought the 10-acre Carlson residence in the middle of the Cagney Ranch. Tom and Janet then offered to sell the property to WRI as a location to continue our efforts to preserve the Ramona Grasslands. In October of 2000, WRI purchased the now WRI Grassland Headquarters on Highland Valley Road and turned it into their headquarters for wildlife research, public education, and preserving the Ramona Grasslands. The Cagney Ranch was the first large parcel bought for the Ramona Grasslands. WRI is currently in the process of accepting fee-simple ownership, and assuming long-term management and monitoring, of lands within the Ramona Grasslands.

## Appendix B

### ACRONYMS and DEFINITIONS

#### Raptor and Corvid Species

AC	American crow
AK	American kestrel
BE*	<i>BALD EAGLE</i>
BH	black hawk
BR	barn owl
BO*	<i>BURROWING OWL</i>
CH*	<i>COOPER'S HAWK</i>
CR	common raven
FH*	<b>FERRUGINOUS HAWK</b>
GE*	<b>GOLDEN EAGLE</b>
GO	<i>great-horned owl</i>
HH	Harris' hawk
LO	long-eared owl
MR	merlin
NH*	<i>NORTHERN HARRIER</i>
OS	osprey
PF*	<i>PEREGRINE FALCON</i>
PR	prairie falcon
RS	red-shouldered hawk
RT	red-tailed hawk
SE	short-eared owl
SO	screech owl
SS	sharp-shinned hawk
SH*	<i>SWAINSON'S HAWK</i>
TV	turkey vulture
UA	unidentifiable accipiter
UB	unidentifiable buteo
UF	unidentifiable falcon
UR	unidentifiable raptor
WK	white-tailed kite
ZH	zone-tailed hawk
WH	white-tailed hawk

#### Other Abbreviations

AB	active burrow
Ad	adult
CN	cavity nest
F	female
HY	hatching year (when a bird is in its first year; i.e., the same calendar year as hatched).
Imm	immature (a non-specific term that means "not adult").
M	male
Mel	melanistic (black/dark)
Ruf	rufous/reddish
Sa	subadult (plumage that precedes adult plumage and appears much like it but with some characters that are not in adult plumage; used only for species, like the golden eagle, that can be distinguished at this age).
SN	stick nest.
U	unknown (e.g., unknown age or sex).